case related, consists of a large horse-shoe magnet, mounted upon a stand in a vertical position, with an armature fixed upon an axis between the poles, so as to revolve in front by means of a wheel. The armature consists of two cylindrical bars of soft iron connected by a cross bar, and in the centre of the bar is an insulated ferule; as near the end of the bar as possible is fastened the breakpiece. Around each of the cylindrical bars is wound two thousand, two hundred and fifty feet of wire, covered with cotton thread to prevent the current of electricity from passing from one wire to the other; the end of one of the coils is connected with the breakpiece, and the other with the ferule. From one of the pillars which are in front of the armature, the springs are made to act on the ferule and breakpiece; from the other pillars the spring connects with the centre; the handles are fastened by the set screws in the base of the pillars. There are four set screws in the back of the upright block of wood, to set out the magnet so as to make the armature revolve as close as possible to the magnet. The shock is communicated on ordinary occasions, by grasping large brass handles which connect with the instrument by short coils of wire which are painted red. To apply it to different parts of the body, long wires covered with cotton thread and terminating in brass balls are used. Two glass cylinders enclose the wires near the balls, for the operator to hold by while administering the shock.

[Dr. J. Warrington, through whom the above communication was transmitted to us, received at the same time, two parcels; one containing the remaining half ounce of the powder, of which the other had been swallowed by the patient; and the second a portion of powder, purporting to be cubebs, purchased at the same shop from which that taken by patient had been obtained.

At the suggestion of Prof. Wood, Dr. Warrington placed these specimens in the hands of Mr. Procter of this city, for examination, and the following article presents the results of the analysis.—Editor.]

Art. V.—*Analysis of a Substance represented to be Pulverized Cubebs.*

By William Procter, Jr.

The substance submitted for investigation consisted of two specimens; one labeled "sample of the powder corresponding to that which the patient took;" the other, "sample of the powder purchased by Mr. Peel whilst the patient was under the influence of the poison, who at my suggestion, went to the same shop and asked for an ounce of pulv. cubebs." They were severally enveloped in double papers and sealed; the first weighing about 100 grains, the second 200 grains; and their sensible properties accorded in all particulars.

The powder was dry, finer than cubebs ordinarily occur, and without the moist appearance usual to it. Its colour was a uniform brown, its odour less aromatic and agreeable than that of good cubebs, and its taste pungent, though accompanied by a bitterness not found in the genuine drug.

In the paper accompanying the specimens, Dr. Page does not express an opinion as to the nature of the poisonous agent associated with the cubebs. A consideration of his remarks on the symptoms produced by the powder, suggested the idea that opium mixed with cubebs might produce all the effects there detailed. The sensible properties of the substance sustained this impression, and the addition of tannic acid and a persalt of iron to its decoction, giving indications favourable to the presence of morphia and meconic acid, was considered sufficiently encouraging to cause a pursuit of the investigation with a view to the presence of opium.

1*st.* 100 grains of the powder was macerated in successive portions of water until exhausted by the menstruum, and the infusions united, filtered, and evaporated to the consistence of a thin syrup. To this a slight excess of chloride of calcium was added, the mixture boiled, and after cooling diluted with twice its bulk of water. The liquid after standing twenty-four hours was filtered and set aside. The precipitate collected on the filter after being washed with water and alcohol and then dried, weighed two and a half grains. This was mixed with twelve times its weight of hot water acidulated with hydrochloric acid, and agitated until dissolved. On cooling, a crystalline precipitate was deposited, having the appearance of bimeconate of lime. By again treating with hot dilute hydrochloric acid and cooling, a crystalline substance was obtained, weighing 1.25 grains, possessed of the following properties. It is very soluble in hot water, soluble in alcohol, has an acid reaction, and its solution is coloured deep red by persulphate of iron. When nitrate of silver is added to its solution, and then sufficient nitric acid to dissolve the precipitate, heating the solution causes the production of cyanide of silver. By heating it in a tube a white sublimate is obtained in brilliant scales. These tests are amply sufficient to prove its identity with *meconic acid.*

2*d.* The liquid remaining after the separation of the meconate of lime was evaporated to one-third of its bulk, and a slight excess of ammonia added. At the expiration of thirty-six hours, a brown crystalline precipitate was deposited, which was dissolved in dilute sulphuric acid and again precipitated. By re-dissolving in alcohol, and evaporoting the solution, 2·5 grains of transparent nearly colourless crystals were obtained.

This substance crystallizes in four-sided prisms with obliquely truncated summits, has an alkaline reaction, and is coloured deep red by nitric acid. Its solution when mixed with iodic acid decomposes it, causing the separation of iodine, which then colours starch water blue, and sulphuric acid containing a little nitric acid colours it green. When saturated with hydrochloric acid it yields a salt in feathery crystals, forms a blue solution with a per salt of iron. These reactions demonstrate beyond a doubt the existance of *morphia* in the powder.

3*d.* 100 grains of the powder was treated by the process of Cassola for cubebin. Ten grains of a substance answering to his description of cubebin was obtained, which by repeated washing with a solution of potassa was deprived of a quantity of resin, and the residue by solution in hot alcohol and evaporation was obtained in yellow transparent crystals. This substance, of which 2·25 grains was obtained, possessed all the properties of piperin, which Monheim has proved to exist in good cubebs to the amount of 4·5 per cent. The substance described by Cassola as cubebin is merely a mixture of pungent resin and piperin.

By distilling a portion of the powder with water, globules of *volatile oil* were obtained.

The liquid remaining after the separation of the morphia yielded *narcein, chloride of sodium, gum, extractive matter,* etc.

The alkaline solution remaining after separating the piperin by saturation with an acid yielded a resin in yellow flocks, subsequently becoming greenish brown. By treating the impure crystals of morphia with sulphuric ether a small quantity of *narcotine* was obtained.

The following is a summary of the substances isolated.

	In 100 parts.
Cubebin or piperin,	2·25
Morphia,	2·50
Meconic acid,	1·25
Narcotine,	Proportions not ascertained.
Narceia,	
Volatile oil and resin,	
Extractive and gum,	
Chloride of sodium,	
Lignin,	

As the object of this analysis is to ascertain the nature and properties of the deleterious agent associated with the cubebs, only those parts of the investigation have been given in detail, which, by proving the presence of morphia and meconic acid in the powder, render the existence of opium in it evident. That other principles, as codeia, meconin, etc. were also contained in it, there cannot be a doubt, but search for them would be as hopeless as it is useless. In conclusion, it may be observed that the quantities of morphia and meconic acid indicate the presence of about 30 per cent. of opium in the powder, equal to 75 grains in the dose taken by the patient, and doubtless sufficient to have occasioned death.